REMARKS

Status of the Claims

Claims 1 and 4-9 are pending in the present application. Claims 4 and 5 are withdrawn as directed to a non-elected invention. Claims 2-3 are canceled. Claim 1 is amended. Claim 9 is new.

Support for amended claim 1 is found throughout the application as originally filed including Figure 1 and Example 1 of the originally filed application. Support for new claim 9 is found, for example, on page 9 of the originally filed application.

No new matter is entered by way of this amendment. Reconsideration of this application, as amended, is respectfully requested.

Issues Under 35 U.S.C. § 112, Second Paragraph

Claim 6 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite, *see* Office Action, pages 3-4. Applicants respectfully traverse.

The Examiner states that pending claim 6 describes a volume of solution in the closed vessel, which is at least five times the quantity of the solution comprising the sample biopolymer. According to the Examiner, it is unclear how a chamber comprising a solution containing the sample biopolymer throughout could have five times the quantity of solution comprising the sample biopolymer. The Examiner states that Applicants have not limited the solution containing the sample biopolymer as separate from the solution in the chamber.

Claim 1 is amended to specify that "the vessel solution is not in contact with the solution comprising the sample biopolymer." Accordingly, Applicants submit that claim 6, which incorporates the elements of independent claim 1 is not unclear in view of the amendment. Reconsideration and withdrawal of the rejection is respectfully requested.

Issues Under 35 U.S.C. § 103 (a)

1) Schembri and Sato

Claims 1 and 7-8 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent Publication No. 2001/0046702 to Schembri, ("Schembri") and U.S. Patent Application

Publication U.S. 2002/0127589 to Sato *et al.*, ("Sato"), *see* Office Action, pages 4-7. Applicants respectfully traverse.

Specifically, the Examiner states that Schembri teaches a hybridization chamber for hybridizing at least one array, wherein the array can be a glass microscope slide. The Examiner further states that Schembri's chamber forms a vapor tight seal. Schembri further teaches a method of hybridizing sample to an array comprising inserting the array into the chamber, adding the sample to be hybridized and closing the chamber. In addition, the Examiner states that Schembri teaches that the use of an evaporation inhibiting liquid may create an uneven distribution and cause evaporation of portions of the array. The Examiner acknowledges that Schembri does not teach a glass slide comprising a hydrophilic and hydrophobic region. However, the Examiner states that Sato remedies this deficiency.

Applicants submit that Schembri does not teach all of the elements of independent claim 1. In particular, Schembri fails to describe "a vessel comprising a solution having the same vapor pressure as the solution comprising the sample biopolymer, wherein the vessel solution is not in contact with the solution comprising the sample biopolymer."

Sato fails to remedy the deficiencies of Schembri and is merely cited for describing a microarray comprising a hydrophilic region having immobilized biopolymers and a hydrophobic region, which does not have immobilized biopolymers. Accordingly, the combination of Schembri and Sato fails to teach or suggest all of the elements of amended claim 1. Accordingly, claim 1 is not obvious in view of Schembri and Sato.

Moreover, Schembri teaches away from the instant invention. Schembri teaches that evaporation inhibiting liquids may create an uneven distribution and cause evaporation of portions of an array, *see* paragraph [0008] of Schembri. Accordingly, Schembri would have discouraged an ordinary artisan from using a humectant, in addition to a solution containing a sample biopolymer, since Schembri teaches that such solutions are ineffective.

Based upon the foregoing, claim 1 is not obvious in view of Schembri and Sato. Dependent claims 7-9, which incorporate all of the elements of independent claim 1 also are not obvious over the combination of cited references. In view of the above, withdrawal of the rejection is respectfully requested.

2) Clonetech and Sato

Claims 1 and 6-8 are also rejected under 35 U.S.C. § 103(a) as allegedly anticipated by Clonetech, GlassHyb® Hybridization Solution User Manual, January 9, 2001, ("Clonetech") and Sato, *see* Office Action, pages 7-9.

The Examiner alleges that Clonetech teaches all of the elements of the claims, but fails to describe a glass slide comprising hydrophilic and hydrophobic regions. However, the Examiner alleges that Sato describes these elements. Accordingly, the Examiner asserts that the combination of references teaches all of the elements of the instant claims.

Applicants submit that Clonetech fails to describe all the elements of amended claim 1. Specifically, Clonetech fails to describe a vessel comprising a solution having the same vapor pressure as the solution comprising the sample biopolymer, wherein the vessel solution is not in contact with the solution comprising the sample biopolymer. Sato fails to remedy the deficiencies of Clonetech and is merely cited for describing a microarray comprising a hydrophilic region having immobilized biopolymers and a hydrophobic region, which does not have immobilized biopolymers. Thus, the combination of Clonetech and Sato fails to teach or suggest all of the elements of amended claim 1. Accordingly, claim 1 is not obvious in view of Clonetech and Sato.

Dependent claims 6-9 are also not obvious over the cited references since these claims incorporate all of the elements of independent claim 1. In view of the foregoing, withdrawal of the rejection is respectfully requested.

3) Lyman, Suzuki, Morel, and Sato

Claims 1 and 6-8 remain rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,555,361 to Lyman *et al.*, ("Lyman"), Suzuki *et al.*, *Brain Research Protocols*, 1999, 4:29-35, ("Suzuki"), Morel *et al.*, *In situ* Hybridization in Electron Microscopy, 2001, CRC Press, Boca Raton, Section 6.9: "Hybridization", pages 1-2 and 239-243, ("Morel"), and U.S. Publication No. 2002/0127589 to Sato *et al.*, ("Sato"), *see* Office Action, pages 9-15.

In an effort to expedite prosecution, claim 1 is amended to specify "spotting and immobilizing a plurality of *different* probe biopolymers to *each* of the plurality of hydrophilic

regions wherein no probe biopolymer is immobilized to the hydrophobic region", *emphasis added.*

Applicants submit that none of the cited references, when considered alone or in combination, teaches or suggests a hydrophilic region comprising a plurality of different spotted probe biopolymers. In the invention disclosed in Sato, a hydrophilic region and a hydrophobic region are used for spotting a single type of probe DNA in, for example, a round shape. Accordingly, Sato teaches that each hydrophilic region comprises a single type of probe, the type of probe differing from region to region. In addition, one of the features of Sato's invention resides in reducing the interval between spots and avoiding mixing. Accordingly, Sato does not teach "spotting and immobilizing a plurality of different probe biopolymers to each of the plurality of hydrophilic regions", as described in the instant claims. Neither Lyman, Suzuki, nor Morel remedy this deficiency.

Applicants further submit that the purposes of Sato's methods and the claimed methods are different. In the instantly claimed invention, the purpose of using a hydrophilic region and a hydrophobic region in probe spotting is not to avoid mixing a probe with other probes. Unlike Sato, the purpose of the claimed invention is to prevent changes in the amount of liquid in a sample during a hybridization reaction.

In view of the foregoing, the combination of cited references fails to teach or suggest all of the elements of amended claim 1. Accordingly, claim 1 is not obvious in view of Sato, Lyman, Suzuki, nor Morel. Further, dependent claims 6-9 are also not obvious over the cited references at least since these claims incorporate all of the elements of independent claim 1.

New claim 9

Applicants further submit that new claim 9 describes an additional feature, which is also not obvious in view of the cited references. Claim 9 specifies "contacting a solution comprising a first type of sample biopolymer with at least one of the hydrophilic regions on the glass slide; and contacting a solution comprising a second type of sample biopolymer with at least one of the other hydrophilic regions on the glass slide." Applicants submit that that none of the cited references either alone or in combination teaches or suggests using different sample biopolymer solutions on a single microarray.

In view of the foregoing, claims 1 and 6-9 are not obvious in view of Sato, Lyman, Suzuki and Morel. Withdrawal of the rejection is respectfully requested.

CONCLUSION

In view of the above amendment and remarks, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Linda T. Parker, Ph.D., Registration No. 46,046 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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